Gentler Hens Peck Each Other Less

In researching poultry production practices and housing alternatives, a team of animal scientists and behaviorists has found that some hens are less prone to pecking than others. Although egg-laying prowess has previously been the primary goal of poultry breeders, they are now selecting birds that are less socially aggressive. In tests, these gentler birds—without beak trimming—have shown a 1.3 percent mortality from cannibalism and aggressive pecking, which is far lower than that of commercial lines.

Animal welfare issues related to poultry housing and routine practices such as beak trimming and induced molting are spurring research such as this, to ensure both humane treatment of the animals and a healthy bottom line for producers. *Heng Wei Cheng, USDA-ARS Livestock Behavior Research Unit, West Lafayette, Indiana; phone (765) 494-8022, e-mail hwcheng@purdue.edu.*

Seeking Quick Checks for *E. Coli*

Sometimes it's really important to know which strain of *Escherichia coli* bacteria might be causing illness in a patient. Several strains, such as O157:H7, are known to provoke severe gastrointestinal problems including bloody diarrhea and hemorrhagic colitis and can lead to serious health complications, including kidney failure. Experts use serotyping to distinguish between *E. coli* strains and determine how potentially dangerous a particular one might be. But the laboratory procedure is labor intensive and time consuming.

Now scientists are developing tests using both conventional and real-time PCR (polymerase chain reaction) methods. These chemical procedures generate enough genetic material to allow identification and study of various *E. coli* strains. The researchers want to find ways to detect and identify specific *E. coli* serogroups and increase knowledge of each one's potency. *Pina M. Fratamico, USDA-ARS Microbial Food Safety Research Unit, Wyndmoor, Pennsylvania; phone (215) 233-6525, e-mail pfratamico@errc.ars.usda.gov.*

The Staying Power of Phosphorus

Too much of a good thing can often be a waste—or even a downright pollutant—but not when it's unused phosphorus fertilizer. Wheat, barley, corn, and other major crops require phosphorus fertilizer if they're to produce profitable yields. But research has shown that annual application isn't always necessary. In fact, a long-term study in Montana has found that just one optimal application of phosphorus increased soil test levels and crop yields for more than 17 years. In Nebraska and Colorado, a single, optimal application of phosphorus also improved yields for several years. But to save money, farmers often apply less than the optimal amount of phosphorus annually.

The take-home message from this research is that applying enough phosphorus fertilizer initially to eliminate phosphorus deficiency results in greater cumulative grain yields and profits in the long term than annual applications of suboptimal amounts. It appears that more can be accomplished if farmers apply an optimal amount of phosphorus one year, then forego applications for at least a year or two. Though the initial cost will be higher, it's more economical in the long run than applying small amounts every year and produces the best yields. Since cropping intensity influences how quickly phosphorus is used, growers using annual cropping systems, rather than wheat/fallow rotations, may find it necessary to apply it more often—though still not every year. *Ardell D. Halvorson, USDA-ARS Soil, Plant, and Nutrient Research Laboratory, Fort Collins, Colorado; phone (970) 492-7230, e-mail ardell.halvorson@ars.usda.gov.*

DAVID NANCE (K5927-23)

DNA-based technology may soon be able to distinguish U.S.-produced cotton from other cotton.

Tracing Cotton Back to Its Source

A tagging system that would enable officials to identify U.S.-sourced cotton and textile components is under development. Through a cooperative research and development agreement with Applied DNA Sciences, Inc., of Los Angeles, California, researchers are working on a DNA-embedded technology that can identify U.S.-produced cotton yarns.

The complexity of today's international cotton, textile, and garment-processing trade makes it difficult to establish country of origin for tariff payment purposes. Because labels are removed from cotton bales and textiles during apparel manufacture, the origin of the fibers and textiles used in goods is difficult to trace. Having access to DNA-based identification technology would help protect cotton fiber, textiles, and garments from counterfeiting and fraud. *David D. McAlister, III, USDA-ARS Cotton Quality Research Station, Clemson, South Carolina; phone (864) 656-2488, e-mail dmcal@clemson.edu.*